

A Phase I Archeological Survey
of the Proposed Cedar Creek Airstrip Borrow Area
on the Fort Knox Military Reservation,
Hardin County, Kentucky

by
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16. Abstract (Limit 200 words) In February and March 1994 the Fort Knox Staff Archeologist and Assistant Staff Archeologist conducted a Phase I archeological survey of a borrow area being used for improvements to the Cedar Creek Airstrip on the Fort Knox Military Reservation, Hardin County, Kentucky. Site 15Hd488 is a multi-component site encompassing an Early Archaic upland open habitation site and a late nineteenth-mid-twentieth century farmstead. A portion of the site had already been destroyed. The site is considered potentially eligible for the National Register. If the installation proposes to expand the borrow pit westward, the remaining portion of the site should be tested prior to earth-moving activities.				
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ABSTRACT

In February and March 1994 the Fort Knox Staff Archeologist and Assistant Staff Archeologist conducted a Phase I archeological survey of a borrow area being used for improvements to the Cedar Creek Airstrip on the Fort Knox Military Reservation, Hardin County, Kentucky. Borrowing operations had been initiated by the Pavements Branch, Operations and Maintenance Division, Directorate of Public Works, without a cultural resources survey. The borrowing operations were shut down immediately when the Environmental Management Division learned of the operations, so that the cultural resource management survey could be conducted and until such time that the report had been evaluated by the State Historic Preservation Office.

Site 15Hd488 is a multi-component site encompassing an Early Archaic upland open habitation site and a late nineteenth-mid twentieth century farmstead. A portion of the site had already been destroyed by the borrowing operations, but an area of the site remains intact. Although no evidence was found of intact subplowzone cultural features, the intact area of the site is considered potentially eligible for the National Register due to conditions not conducive to the evaluation of the site.

It is recommended that the Operations and Maintenance Division of Fort Knox be permitted to continue borrowing activities in the area already borrowed to subsoil, since there is no potential for cultural materials or deposits in this area. If the installation proposes to expand the borrow pit westward, the remaining portion of the site should be tested prior to earth-moving activities.

Measures have been taken to prevent the reoccurrence of earth-moving undertakings on the installation without the requisite cultural resource studies through the education of Operations and Maintenance personnel as to the Section 106 process and required time frames for such studies. This process of education of personnel will continue as other divisions are identified which are involved in activities which could potentially impact cultural resources.

MANAGEMENT SUMMARY

In accordance with Executive Order 11593 and other applicable federal laws and regulations, a Phase I archeological study was conducted of a proposed borrow area for the Cedar Creek Airstrip on the Fort Knox Military Reservation, Hardin County, Kentucky. Use of the borrow area had been initiated without a cultural resource survey. Use of the borrow area was discontinued until the survey could be completed. Field inspection resulted in the recording of 15Hd488 a multicomponent site encompassing an Early Archaic upland open habitation site and a late nineteenth to mid twentieth century farmstead. A substantial portion of the site had been destroyed by the borrowing. The historic component is considered not eligible for the National Register, and no further archeological investigation is recommended for the historic component. The remaining portion of the prehistoric component is considered potentially eligible for the National Register, due to the frequency of cultural materials in shovel tests and due to field conditions not conducive to the thorough assessment of the site. It is recommended that the Pavements Branch, Operations and Maintenance Division be permitted to continue borrowing operations in the area already borrowed to subsoil. It is recommended that the grassy knoll that lies immediately west of the existing borrow pit and that contains the remaining portion of the prehistoric component of 15Hd488 not be used for borrow fill unless Phase II archeological testing is conducted prior to the borrowing operations.

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I. INTRODUCTION

In February and March 1994, the Fort Knox Staff Archeologist and Assistant Staff Archeologist were requested to perform a Phase I archeological survey of a proposed borrow area for the Cedar Creek Airstrip improvements at Fort Knox, Hardin County, Kentucky (Figure 1). The Pavements Branch, Operations and Maintenance Division, had initiated use of the borrow pit without the requisite cultural resource survey due to ignorance of the Section 106 process. When the Pavements Branch personnel were informed of the need for the cultural resource survey of a proposed borrow pit for road improvements construction in an adjoining hunting area, they informed the Cultural Resource Management (CRM) branch staff of the airstrip borrow pit. Borrowing operations at the airstrip borrow pit were immediately suspended until the proposed borrow area could be surveyed for cultural resources and the report of investigations evaluated by the State Historic Preservation Office (SHPO).

The proposed borrow area is approximately 70 m wide (east-west) by 100 m long (north-south). It is bounded to the west and north by the Cedar Creek Airstrip Road, to the east by a treeline, and to the south by tank trails and trees. The proposed borrow area encompasses approximately 1.7 acres (0.7 ha). The area already borrowed to subsoil within the proposed borrow area encompassed approximately 1.08 acres (0.44 ha). In addition to the proposed borrow area, the access route to the airstrip berm was also surveyed. This access route is approximately 200 m long (east-west) by 20 m wide, encompassing 0.4 ha or 0.99 acres.

During July and August, 1993, the Fort Knox Staff Archeologist obtained all the documents necessary to perform Phase I literature searches for the installation. Copies of all of the state site forms for sites on the Fort Knox installation were acquired from the Office of State Archaeology (OSA), University of Kentucky, Lexington, and all reports of previous investigations on the installation or immediately adjacent to the installation from gathered from various sources. She also updated the site files by comparing the Fort Knox cultural resources quadrangle maps against the quadrangles on file at the OSA. All documents necessary to perform Phase I literature searches for the installation are present at the Cultural Resource Management Branch of the Directorate of Public Works, Fort Knox, therefore, no file check was made with the OSA and the Kentucky Heritage Council specifically for this project.

The proposed borrow area is located in the Plain section of the Pennyryle cultural landscape, on one of the broad, flat-topped ridges that characterize this portion of the Mississippian Plateau physiographic region. The elevation of the project area is approximately 740 feet. Soils are

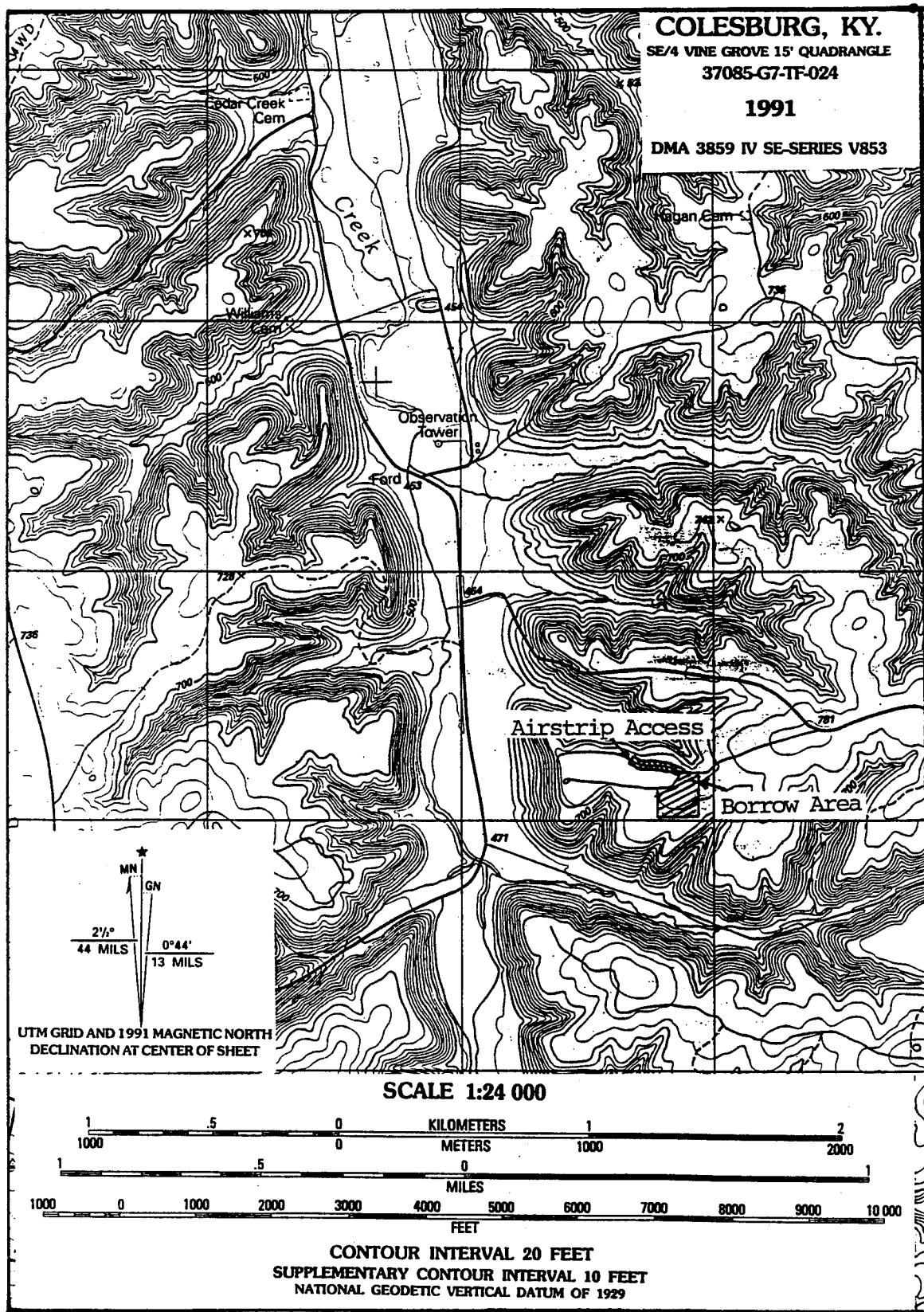


Figure 1. Location of Proposed Borrow Area.

classified as Garmon-Caneyville-Lenberg soil association (U.S.D.A. 1979: General Soil Map). The project area is on a ridge above numerous drainages that form the headwaters of tributaries of Cedar Creek, which is located approximately 1 km west of the project area. Cedar Creek flows into the Rolling Fork River, approximately 5.5 km north of the project area.

The archeological survey was conducted in preparation for the removal of borrow materials for the improvement of the Cedar Creek Airstrip, Fort Knox Directorate of Public Works Work Order KR000124J. The archeological survey and literature review were required to comply with the National Environmental Protection Act, or NEPA, (Public Law 91-190), the Historic Preservation Act of 1966, as amended (Public Law 89-665), the Archaeological Resources Protection Act of 1979 (Public Law 96-95), Presidential Executive Order 11593, and Army Regulation 420-40.

The project area was surveyed on March 1, 1994. A total of five person hours were spent in the survey of the proposed borrow area. The artifacts collected in this survey and the documentation of this project will be curated at the University of Louisville Program of Archaeology, on a "permanent loan" basis, under contract number DABT 23-93-C-0093, for curatorial and technical support (copy of contract on file, DPW, Fort Knox, Kentucky). Duplicate copies of the documentation will be stored at the Directorate of Public Works (DPW), U.S. Army Armor Center and Fort Knox, Fort Knox, Kentucky.

II. ENVIRONMENTAL SETTING

O'Malley et al. (1980) presented a detailed description of the setting and environmental background of the Fort Knox base as a whole. This section will concentrate on the characteristics of the project area.

The project area lies in the Mississippian Plateau physiographic region of Kentucky (McGrain and Currens 1978:35). The terrain is characterized by broad, flat-topped ridges and adjoining narrow, steep-walled stream valleys (McGrain and Currens 1978:35). The elevation in the project area is approximately 740 feet.

Soils in the project area are classified as Garmon-Caneyville-Lenberg soil association which are described as "very steep, steep, and moderately steep, moderately deep, well drained soils on hillsides, narrow ridges, and foot slopes (Arms et al. 1979: General Soil Map). Soils in the borrow area are Crider silt loam, with a two to six percent slopes (Arms et al. 1979: Sheet 14). The access route to the airstrip berm is located on Nicholson silt loam, with

two to six percent slopes (Arms et al. 1979: Sheet 14). The aerial photograph of the project vicinity in Arms et al. (1979: Sheet 14) indicates that the proposed borrow area was in use as a tank training or vehicle turnaround area, with several trails running through it that were clear of vegetation.

The project area is located on a knoll on a broad upland area located above numerous drainages that form the headwaters of tributaries of Cedar Creek, which is located approximately 1 km west of the project area. Cedar Creek currently runs along the base of the bluffs at the west side of the floodplain. At some time in the past the Cedar Creek channel may have flowed nearer the east bluff line, 0.3 km closer to the project area. Cedar Creek flows into the Rolling Fork River approximately 5.5 km north of the project area.

Most of the project area had been previously disturbed by earthmoving activities. Approximately half of the proposed borrow area already had been borrowed to subsoil. Approximately one-fourth of the proposed borrow area had been scraped of most vegetation, but still had a thin layer of topsoil present. The remaining quarter of the borrow project area had moderate to dense grass cover, and an intact topsoil zone. The access route encompassed an existing dirt road and the adjoining grass covered ridge slope.

III. PREVIOUS RESEARCH

A number of cultural resource management (CRM) projects have been conducted on the Fort Knox military reservation. Numerous projects also have been conducted in the portions of Bullitt, Meade, and Hardin Counties outside the military reservation, according to the state archeological bibliography and updates. O'Malley et al. (1980) provide an in-depth discussion of research in Bullitt, Hardin, and Meade counties through 1979, and Schenian (1991) and Schenian and Mocas (1992) provide a summary of the research which has taken place since the O'Malley et al. (1980) study was completed. This section will focus on the projects which have been conducted on the military reservation and within the vicinity of the current project area.

There are 112 Hunting Areas on the Fort Knox installation, plus an approximately 10,000 acre cantonment area and a small amount of acreage which lies outside the cantonment area or any hunting area. O'Malley et al. (1980) surveyed approximately one-quarter of each of the 96 hunting areas which did not contain grenade ranges. O'Malley et al. (1980) recorded 415 sites (15Bu295 through 15Bu410, 15Hd109 through 15Hd294, and 15Md103 through 15Md242). Some of these sites were recorded outside the official survey areas, and were discovered while gaining access to the selected

survey areas from the closest access road. Some of the sites are isolated finds. O'Malley et al. (1980) did not evaluate the National Register status of the sites inspected in a manner which meets the current standards, although opinions are offered on many of the site forms and in an appendix of the report of investigations. The purpose of the O'Malley et al. (1980) study was to provide a preliminary inventory of portions of the installation and to develop a database for the predictive modeling of site locations on the installation, and not to evaluate sites for a task-specific construction project.

Holmberg (1991) prepared an archival study on the four mill sites (15Md164, 15Md176, 15Md185, and Grahamton) recorded by O'Malley et al. (1980) in the Meade county section of the base. Holmberg's (1991) study includes an appendix (Ball 1991a) delimiting a scope of services for the testing of the mill sites. This testing is scheduled to be performed in 1994 and 1995 through a Legacy grant.

A number of projects have been conducted in conjunction with proposed timber harvests. Bush et al. (1988) revisited 15Bu319 and recorded sites 15Hd438 through 15Hd446 and 15Bu485 through 15Bu491 in their survey of timber areas in Hunting Areas 41, 42, and 52. Myers (1990) surveyed 287 acres in Hunting Area 95, recording 15Bu495 through 15Bu502, and describing modern house and garbage dump sites. Mueller (1991) surveyed 270 acres in Hunting Area 1, revisiting 15Md11, 15Md152, and 15Md159, and recording 15Md322 through 15Md325, two historic cemeteries, five prehistoric isolated finds, and three modern structures. Schenian and Mocas (1992) surveyed 600 acres and attempted to relocate and flag previously recorded sites in an additional 300 acres. Their project areas consisted of 14 timber parcels located in Hunting Areas 13, 74, 76, 77, 78, 81 through 84, and 88 through 90. This survey resulted in the recording of sites 15Hd462, 15Hd463, 15Hd464, 15Md326, and one isolated find, and the revisiting of 15Hd140. Attempts were made to relocate 15Hd18, 15Hd113, and 15Hd139, but were unsuccessful. Ruple (1992a) revisited sites 15Md152, 15Md153, and 15Md322 in Hunting Area 1. Ruple (1992b) revisited sites 15Hd184, 15Hd186, and 15Hd249, and made an unsuccessful attempt to relocate 15Hd248, in order to flag avoidance boundaries around the sites in Hunting Area 90 in preparation for logging activities in conjunction with the clearing of the Highway 313 easement. Ruple (1993a) surveyed all 813 acres comprising Hunting Area 4 in preparation for timber harvests in scattered parcels within the Hunting Area.

The improvement of facilities on the Fort Knox installation has resulted in several CRM studies. Sorensen and Ison (1979) surveyed a proposed telephone building expansion site and access road in the cantonment area, recording no sites. Sussenbach (1990) surveyed three weather radar installation sites, in Hunting Area 23, discovering one prehistoric iso-

lated find. Ruple (1993b) surveyed approximately 10 acres in the cantonment area for a shoreline maintenance project, encountering no sites. Mocas (1993) reported on the examination of approximately 165 acres in and around a proposed landfill and borrow area, which located no sites in the highly disturbed area. Mocas (1994a) surveyed a proposed sports complex project area in the cantonment, encountering no archeological sites.

The development, expansion, or improvement of training areas has resulted in a number of CRM studies. Driskell and O'Malley (1979) surveyed the Wilcox Gunnery Range, recording sites 15Bu393 through 15Bu397. Schenian (1991) surveyed 116 acres in portions of Hunting Areas 17, 30, and 41, in conjunction with the Fort Dix realignment, re-examining 15Bu303, and recording 15Bu492, 15Hd459, and two prehistoric isolated finds. Hemberger (1991) also surveyed approximately 405 acres in seven construction sites in Hunting Areas 17, 24, 31, 32, 34, and 54, in conjunction with the Fort Dix realignment. This study resulted in the recording of 15Hd461 and 15Bu504, the revisiting of 15Bu299 and 15Bu385, and the unsuccessful attempt to relocate previously recorded site 15Hd274. Hemberger (1991) surveyed a total of 126 acres in four proposed construction areas in the Yano Tank Range, in Hunting Area 93, recording 15Hd460, revisiting 15Hd178, 15Hd182, and 15Hd282, and unsuccessfully attempting to relocate previously recorded site 15Hd283. Hemberger (1992) surveyed a 7.5 acre borrow area in Hunting Area 24, proposed to be used for the consolidation and improvement of two training ranges, and encountered no sites.

In conjunction with land sales, Ball (1987) surveyed approximately 196 acres in the Bullitt County portion of Fort Knox, recording sites 15Bu479 through 15Bu481 and describing one post-1950, or modern, house foundation. Ball (1991b) also surveyed a 19 acre tract near Radcliff prior to disposal of the tract, recording two historic/modern trash dumps which were not assigned state site numbers. Hale (1981) surveyed the Otter Creek Park, recording 15Md243 through 15Md303. Portions of Otter Creek Park, now owned by the City of Louisville, were once part of the Fort Knox military installation, but were disposed of in the 1970's.

Road construction and improvements have resulted in a number of CRM projects on the military reservation. McGraw (1976) surveyed the proposed U.S. 60 bridge and approaches near Otter Creek park, encountering no sites in a 2.35 mile long corridor which passes through Hunting Areas 7 through 9 and 11 and 12. Fiegal (1982) surveyed the Radcliff Industrial Park access road, including land in Hunting Area 15 as well as off the installation. He recorded 15Hd403 and 15Hd404 off the installation, and revisited 15Hd215 and 15Hd272 on the installation. Webb and Brockington (1986) surveyed the 4.75 mile long Kentucky Highway 1638 realign-

ment corridor, which included portions of Hunting Areas 5 and 7 through 10. They revisited sites 15Md176, and 15Md182 through 15Md185, and recorded 15Md306, 15Md307, and 15Md309. Sites 15Md176, 15Md182, 15Md183, and 15Md307 were all parts of the former town of Garnettsville. The latter three sites were tested (Wheaton 1982), but 15Md176 was not tested because it fell outside the 1638 realignment easement. DiBlasi (1986) surveyed 14 alternative alignments of the approximately 20 km (12.4 miles) long Kentucky Highway 313 corridor, which includes portions of Hunting Areas 80 through 83 and 90, as well as land outside the installation. A total of 27 sites (15Hd406-15Hd430 outside the installation, and 15Hd135, 15Hd184, 15Hd186, 15Hd248, 15Hd249, 15Hd253, 15Hd431, and 15Hd432 on the installation), some previously recorded, were located in the survey corridor. Hixon (1992) tested 15Hd423 and 15Hd426, and archeologists from Wilbur Smith Associates tested six sites on the installation, including 15Hd249 and 15Hd253 (Fenton 1993: personal communication to Schenian). A recent survey of proposed borrow pits for the Cedar Creek-Yano Road improvements (Mocas 1994b) resulted in the recording of 15Hd489 and 15Hd490, the revisiting of 15Hd120 and 15Hd121, and the unsuccessful attempt to relocate 15Hd246.

In addition to the CRM projects, several sites have been recorded on the military reservation in non-CRM contexts. Funkhouser and Webb (1932) published a catalog of archeological sites in the state, with the information gained primarily through correspondence with amateur archeologists, collectors, and local historians, and included the description of two sites now on the military reservation. These are 15Md10, a mound group on Indian Hill, and 15Md11, a mound near the mouth of Otter Creek (Funkhouser and Webb 1932:281). Lee Hanson recorded 15Hd17 and 15Hd18, while attending ROTC training camp at Fort Knox in 1961 (Hanson 1961a, 1961b; Dr. R. Berle Clay 1991: personal communication). The wife of a soldier stationed at Fort Knox partially excavated 15Hd273, a mound in Hunting Area 6, in 1955 (Anonymous 1955).

Of greatest relevance to the current survey are the O'Malley et al. (1980) survey of large tracts in Hunting Areas 83, 84, and 88 through 92, and the Schenian and Mocas (1992) survey of proposed timber areas in Hunting Areas 84, 88, and 90. Together these surveys provide information about the type and distribution of sites in the uplands bordering Cedar Creek. Of the sites recorded in the aforementioned studies the sites nearest to the current project area are 1.0 km or more distant. No archeological sites or standing structures listed on or eligible for listing on the National Register of Historic Places are located in or immediately adjacent to the current project area.

IV. SURVEY PREDICTIONS

Based on previous archeological research in the area, the history of settlement, and the environmental setting of the project area, the following results were expected:

- 1) Relatively level upland areas overlooking sources of flowing water, such as the current project area, are high potential areas for the location of prehistoric and historic sites.
- 2) According to the 1940's land acquisition maps, which show property boundaries, but not structure locations, the project area falls at the approximate center of a 273.40 acre tract owned by W.E. Crowe. The location of the project area on a knoll near a road on the broad upland area makes it a high potential area for the location of the Crowe residence.
- 3) Due to the fact that borrowing operations had been initiated prior to the survey, it was expected that, if a site were present in the project area, it would be partially or completely destroyed.

V. FIELD METHODS

The proposed borrow site was shown to the CRM branch staff on February 28, 1994, by Mr. Jerry Board, of the Pavements Branch. Immediately upon entering the project area, both Schenian and Mocas discovered archeological materials, including a medial section of a projectile point, at the margin of the area that had already been borrowed for fill and in the adjoining area to the west, which still had intact vegetation and topsoil. The Pavements Branch personnel were instructed to discontinue borrowing activities until the cultural resource survey had been completed.

On March 1, 1994, Schenian and Mocas returned to the project area. The borrow area was systematically walked in transects at 5 m intervals. Approximately half of the proposed borrow area already had been borrowed to subsoil. Ground surface visibility was 100 percent in this area. Approximately one-fourth of the proposed borrow area had been scraped of most vegetation, but still had a thin layer of topsoil present. Ground surface visibility was 100 percent in this area. The remaining quarter of the borrow project area had moderate to dense grass cover, and an intact topsoil zone. Ground surface visibility was variable in this area, ranging from nearly zero percent on the knoll crest to

approximately 50 percent at the north end of the grassy area. Two pan scrapers, one bulldozer, and a pickup truck were parked on the north third of the grassy area, however, blocking observation of much of the ground surface.

The ground surface of the entire borrow area was walked in transects spaced at 5 m intervals, until no additional materials were recovered for a distance of 20 m within a transect. Figures B-1 and B-2 in Appendix B depict the location and plan view of the site, and Figure B-3 illustrates representative soil profiles of the shovel probes excavated on the site.

Nine shovel probes were excavated in the site area to ascertain the vertical depth of the intact topsoil/plowzone level, the potential for subsurface cultural deposits, and the extent and method of any previous disturbance. Each shovel probe was approximately 30 cm square, and was excavated to subsoil. The fill from shovel probes in the site vicinity was screened through one-quarter inch hardware cloth prior to backfilling of the probes. The remaining intact portion of the prehistoric component is located in the grass covered area, with the apparent highest density of materials in the area with nearly zero percent ground surface visibility, so a series of seven shovel probes were excavated to determine the depositional characteristics of the site and the disturbed areas. Two shovel probes were excavated in the slightly graded portion of the historic component, located to the east of the borrowed area.

The access route was walked in two transects 10 m apart. The access route encompassed an existing dirt road, which had 50 to 100 percent visibility, and the adjoining grass covered ridge slope, which had approximately 50 percent ground surface visibility. No archeological materials or deposits were observed in the access route.

VI. MATERIALS RECOVERED

The following paragraphs summarize the artifact typologies used in the sorting and analysis of the artifacts. The total number of artifacts in each artifact class recovered from 15Hd488 are also discussed in this section. The prehistoric artifacts were analyzed by Mocas, and the historic artifacts were analyzed by the Fort Knox lab assistants at the Program of Archeology, University of Louisville, using Maples (1991) and under the supervision of Philip J. DiBlasi, Staff Archeologist, Program of Archeology.

Prehistoric Artifact Typology

Projectile Point

A projectile point is a bifacially worked chipped stone tool which is generally assumed to have been hafted for use as a hunting implement, such as a spear head or arrowhead, but may have an alternative or additional use as a cutting implement. One Kirk Corner Notched point (Figure 2) and one medial fragment, which could not be typed, were recovered from 15Hd488. A Kirk Corner Notched point is an Early Archaic projectile point type, dating from 7500 to 6900 B.C. (Justice 1987:71).

Chert Debitage

Chert debitage is a catchall category used to describe the material generally created as a by-product in the manufacture of more formally defined chipped stone tools. Chert debitage may be further divided into the categories of flakes, blocky chert pieces, and chert shatter. It may also be classified by stage of manufacture and by evidence for use as an informal, or expedient, tool. The following criteria have been applied to sort the chert debitage collected in this study:

- 1) Flakes are defined by the presence of a striking platform and bulb of percussion. Concentric rings or ripple marks on the ventral surface, and feather terminations may also be present. Flakes are classified as primary flakes if 90 percent or more of the dorsal surface (the side opposite the bulb of percussion) is covered by cortex or rind; as secondary flakes if one to 90 percent of the dorsal surface is covered by cortex; and as tertiary flakes if no cortex is present on the dorsal surface.
- 2) A chert piece is classified as shatter if it is a flat, generally small, piece exhibiting some flake-like characteristics, but is insufficiently complete to classify the piece as a primary, secondary or tertiary flake.
- 3) A microflake is a complete flake that is less than 5 mm in length, generally associated with fine retouch or resharpening of tools.
- 4) A piece of chert debitage is classified as utilized if at least three contiguous small flakes have been removed from one or more edges by use rather than retouch.

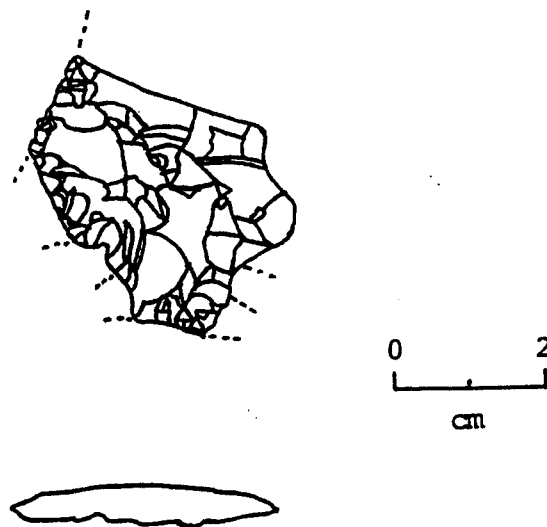


Figure 2. Kirk Corner Notched Projectile Point from 15Hd488.

- 5) A piece of chert debitage is classified as unutilized if it exhibits no evidence of the removal of small flakes through use.

A total of 15 pieces of unutilized chert debitage were recovered from 15Hd488, consisting of two secondary flakes, 10 tertiary flakes, two pieces of shatter, and one fire-pocked blocky fragment. One utilized flake was also recovered. Of the unutilized debitage, one tertiary flake was recovered from each STP#1 and STP#4, and the blocky fragment was recovered from STP#2. All of the other prehistoric artifacts were recovered from the site surface.

Historic Artifact Typology

South (1977:95-96) defined a system of artifact classification based on function. Under South's system, ceramics and curved glass are kitchen group artifacts, flat glass and nails are architectural group artifacts, and horseshoes are miscellaneous group artifacts. With the exception of the nail fragment, all of the historic artifacts were recovered from the site surface.

Ceramics

Historic ceramics are divided into coarse earthenware, stoneware, ironstone, porcelain, semi-porcelain, and refined earthenware. Coarse and refined earthenware have the most porous paste, stoneware and ironstone have less porous paste, and semi-porcelain and porcelain have the least porous paste. Each of these broad categories are further divided into more specific types based on paste texture and color, glaze characteristics, and decoration (Maples 1991).

Coarse Earthenware. One coarse earthenware sherd was recovered from 15Hd488. It is a yellowware rim with Rockingham glaze, dating from ca. 1840-1900 (Barrett 1964).

Stoneware. A total of seven stoneware sherds were recovered from 15Hd488. Three are gray stoneware sherds with gray paste and brown salt glaze. One is a buff stoneware sherd with buff paste and brown salt glaze. Three are buff stoneware with black salt glaze interior and white salt glaze exterior.

Ironstone. Four ironstone sherds were recovered from 15Hd488. These are rim and body sherds with white glaze and molded decoration. These date from 1860 to 1920 (Ketchum 1983:201).

Refined Earthenware. Two whiteware sherds were recovered from 15Hd488. One small sherd has a green floral trans-

fer print decoration, dating from 1830 to 1860 (Price 1979:31).

Glass

Glass artifacts comprise flat glass (e.g., windows or mirrors), curved glass (e.g., bottles), and other artifacts (e.g., buttons). One piece of green flat glass and 25 pieces of curved glass were collected from 15Hd488. The 25 pieces of curved glass consist of eight green pieces, 11 clear glass, four solarized amethyst, one aqua, and one amber. The aqua piece is a bottle neck, with a Hutchison blob lip, dating from 1880 to 1915 (Newman 1970:70-75). Solarized amethyst glass dates from 1880 to 1940 (Newman 1970). The amber glass fragment has a small area of embossed lettering, which could not be identified as to manufacturer or product, and dates from 1860 to present (Fike 1987:3).

The 11 clear glass fragments may derive from a single bottle. One is a bottle neck with screw threads, mold seams on two sides, dating from 1919 to present (Deiss 1981:95). One is a bottle panel, two are side panels, and seven are miscellaneous bottle fragments.

Nail/Spike

One rusted nail fragment was recovered from 15Hd488 in STP#8 and one rusted spike was recovered from the site surface. The nail fragment is too corroded and fragmentary to identify the nail type (e.g., cut or wire).

Horseshoe

One rusted horseshoe was recovered from 15Hd488.

VII. CULTURAL RESOURCES

15Hd488

Site 15Hd488 is a multicomponent site encompassing an Early Archaic upland open habitation site and a historic Euro-American farmstead (Figures B-1 and B-2). The overlap of the two components was marginal as viewed at the time of survey, but it is impossible to determine how far east the prehistoric component extended into the area already borrowed for fill. A single site number was therefore requested for the two components. The artifacts from the site are curated under accession number 94.29 at the Program of Archeology, University of Louisville.

A total of 18 prehistoric materials were collected from 15Hd488, consisting of two projectile point fragments, 15 pieces of unutilized chert debitage, and one utilized flake. The identifiable projectile point is a Kirk Corner Notched point (Figure 2), the other was a medial fragment which could not be typed. A Kirk Corner Notched point is an Early Archaic type dating from 7500 to 6900 B.C. (Justice 1987:71). The prehistoric cultural materials were gathered over a 50 m (north-south) by 40 m area. One chert flake was retrieved from the plowzone of each of three shovel probes (Figure B-2).

A total of 46 historic artifacts were collected from an area 80 m (north-south) by 50 m in the eastern portion of the scraped area. All artifacts identified as of historic or of possibly historic origin were collected from the site. Additional materials of modern origin, and probably related to military activities and hunters were observed on the site surface, but not collected. Some of the materials recovered and curated, i.e., the clear glass fragments, may actually be of modern, post-occupation origin.

The property on which 15Hd488 lies was acquired by the Army in the 1940's from W.E. Crowe, and the historic farmstead most probably represents the Crowe farmstead. The historic artifacts collected from the site suggest a date of post-1860 to ca. 1940 for the historic component. No evidence of intact structural remnants or of features associated with the historic component remain. One horseshoe and a spike recovered from the site may indicate the former presence of a barn or similar outbuilding at the site.

Approximately one-half (the center) of 15Hd488 has been scraped well into the subsoil, and the vegetation and some or all of the topsoil had been scraped from the east quarter of the site. Only a small strip of ground on the west edge of the site, with a maximum width of 30 m and a length of approximately 60 m, remains relatively undisturbed. The soil profiles of the shovel probes indicated that there was approximately 22 cm of plowzone deposit above the subsoil and that prehistoric cultural materials were present in this relatively intact area. No undisturbed midden zone was present below the plowzone, and no cultural features were encountered in the shovel probes or observed in the cutbank or the scraped area adjacent to the intact portion of the site; however, the plowzone deposits were thick enough to potentially preserve subsurface features, if any were present.

The historic component of 15Hd488 is not eligible for the National Register, due to the low artifact density and the lack of evidence for intact or potentially intact features despite nearly 100 percent ground surface visibility over most of the area in which historic materials were

found. No additional archeological investigation is recommended of the historic component of 15Hd488.

The remaining portion of the prehistoric component of 15Hd488 is considered potentially eligible for the the National Register due to the potential for intact cultural features in the unscraped, grassy strip, and to conditions not conducive to the adequate evaluation of this portion of the site, i.e., poor ground surface visibility. It is recommended that the borrowing of the grassy strip be avoided unless further archeological investigations are conducted of the remaining portion of the prehistoric component. Further investigation of the site should include the discing of the grassy strip followed by a controlled surface collection and the hand-excavation of test units.

VIII. CONCLUSIONS AND RECOMMENDATIONS

The survey of the borrow area resulted in the recording of one archeological site, 15Hd488, with an Early Archaic component and a late nineteenth to mid twentieth century farmstead. The Phase I literature search of the proposed borrow area revealed that the project area was encompassed by a historic farmstead, owned by W.E. Crowe at the time of Army acquisition. Field observation located historic household and farm items that probably derive from this occupation, but no structural remnants remain. It appears that the historic component of site 15Hd488 has been totally destroyed by military training activities and borrowing operations. The historic component is not eligible for the National Register, and no further archeological investigation is recommended for the historic component of 15Hd488.

A portion of the prehistoric site had been destroyed by the borrowing operations which had been initiated without a cultural resource survey, but a small area of the site, containing intact topsoil and prehistoric materials, remains. It is recommended that this intact grassy portion of 15Hd488 not be used for borrow activities unless further archeological investigations are conducted of the prehistoric component to adequately assess its eligibility for the National Register.

Regarding the borrowing operations, the portion of the project area already scraped to subsoil has no potential for intact cultural deposits. It is recommended that installation be permitted to use the portion of the project area which is already scraped to subsoil for continued borrow activities. It is recommended that the area east of the existing borrow pit which had been scraped of vegetation, and which only contained materials associated with the historic component, also be available for use as borrow fill. The intact area west of the existing borrow pit should be

avoided unless further archeological investigations are conducted. Examination of the access route did not result in the location of any cultural materials, and it was determined that much of the route had previously been eroded to subsoil through its previous use as a road. No further archeological work is necessary in the access route area. Lastly, upon completion of the borrowing operations for the airstrip, the borrow pit cutbank adjoining the intact portion of the site should be reseeded in grass to prevent erosion of the intact portion of the site.

The fact that borrowing operations were initiated without a cultural resource survey indicates the need for better education of installation personnel regarding Section 106 requirements and better coordination of installation earth-moving projects with the CRM Branch. To help prevent similar situations from occurring, the Staff Archeologist has instructed the Pavements Branch supervisor and the Operations and Maintenance Division chief about cultural resource management regulations and the time frames needed for the performance and evaluation of archeological studies. The CRM staff is actively working with the Pavements Branch to locate areas near their projects which are suitable for borrowing and which have been previously surveyed with negative results, or which can be surveyed well in advance of their scheduled use. Efforts are being made to identify other installation branches, divisions, and directorates which might be engaged in earthmoving activities so that personnel can be educated about Section 106 requirements and so that the appropriate cultural resource studies can be conducted in a timely manner.

The Staff Archeologist wants to make it clear that the Pavements Branch and the Operations and Maintenance Division are not wholly at fault for the initiation of borrowing without a cultural resource survey. The Operations and Maintenance Division handles thousands of work orders per year which are initiated by other installation units and individuals, and many of its personnel have been installation employees since before the enactment of the National Historic Preservation Act in 1966, but were never adequately informed of the Section 106 process, or of the potential consequences of ignoring it. Their work orders are expected to be processed rapidly, and the CRM studies should be conducted long before the work orders are received at the Operations and Maintenance Division. The Operations and Maintenance Division should therefore educate their "clients" as to the Section 106 requirements to assist and expedite coordination with the CRM staff. Lastly, the Staff Archeologist would like to commend Jerry Board, Supervisor of the Pavements Branch, and Pat Walsh, Chief, Operations and Maintenance Division for their efforts in coordinating with the CRM staff on borrowing activities initiated since this project.

In the remote possibility that archeological materials are discovered during earthmoving activities all activity in the vicinity of the finds must cease and the State Historic Preservation Officer (502-564-6661) and the DPW Cultural Resource Management Branch (502-624-6581) should be contacted, so a representative of those agencies may evaluate the materials. Also, if human remains, regardless of age or cultural affiliation, are discovered, all activity in the vicinity of the remains must cease immediately, and the state medical examiner (502-564-4545) and the appropriate local law enforcement agency (Fort Knox Law Enforcement Command, 502-624-6852) must be contacted, as stipulated in KRS 72.020.

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APPENDIX A.
RESUMES OF KEY PERSONNEL

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Date and Place of Birth: January 1, 1959; Waukesha, WI.

Present Position: J.M. Waller & Associates/Fort Knox Staff
Archeologist and Cultural Resource Manager

Education:

A.B.D. in Anthropology, Northwestern University, 1984.
M.A. in Anthropology, Northwestern University, 1982.
A.B. in Anthropology, Bryn Mawr College, 1980.

Previous Employment:

Senior Staff Archeologist, Archeology Service Center,
Department of Sociology, Anthropology, and Social Work, Mur-
ray State University, Murray, KY, November 1991-June 1993;
Staff Archeologist, November 1983-November 1991.

Southern Illinois University, Carbondale, IL: Field
Technician, November-December 1985, September-October 1984.

Illinois State Museum Society, Springfield, IL: Field
Assistant II (Supervisor), summer 1983; Field Technician,
summer 1981.

Center for American Archeology, Kampsville, IL: Field
Technician, summer 1982.

Department of Anthropology, Northwestern University,
Evanston, IL: Teaching Assistant, 1981-82 academic year.

Great Lakes Archeological Research Center, Milwaukee,
WI: Field Technician, summer 1979.

Field Research Experience:

Field experience on prehistoric and historic archeologi-
cal projects in the states of Illinois, Indiana, Kentucky,
New Jersey, South Dakota, Tennessee, and Wisconsin, 1979-
present.

Professional Publications, Reports, Papers and Manu-
scripts:

86 CRM contract reports on projects in Indiana, Kentucky,
and Tennessee.

1 Homicide site excavation contract report prepared in lieu
of court testimony in Illinois.

7 Papers presented at professional conferences.

5 Publications, 1 in press.

Doctoral candidacy qualifying paper: "A Theory of Individ-
ual Style Variation for Archeological Studies".

Manuscript submitted in partial fulfillment of the M.A.
requirements: "Models of Environmental-Cultural Relation-
ships: Testing with Archeological Evidence".

Stephen T. Mocas
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Present Position: University of Louisville Program of
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Education:

Completed one year of doctoral program, Southern Illinois University, Carbondale, Illinois, 1972.

B.A. in Anthropology, University of Louisville, 1971.

Previous Employment:

Indiana University, Bloomington, Indiana: Staff Archaeologist, September 1991-November 1993.

Murray State University, Murray Kentucky: Staff Archaeologist, November 1991-November 1993.

Jefferson Community College, Louisville, Kentucky.

Anthropology Instructor, August 1981-December 1982.

Louisville School of Art, Louisville, Kentucky: Anthropology Instructor, January-May 1976.

University of Louisville Archaeological Survey, Louisville, Kentucky. Project Director, Field Supervisor, or Research Assistant on various projects, July 1969-January 1977.

State University of New York of Buffalo, Buffalo, New York. Senior Field Worker, June-August 1970.

Field Research Experience:

Field experience, Phase I-III, prehistoric and historic archeological projects in the states of Illinois, Indiana, Kentucky, New York, and Tennessee, 1969-present.

Research Grants:

Six grants for fieldwork and research.

Professional Publications, Reports, Papers and Manuscripts:

- 3 non-contract site reports on projects
- 13 CRM contract reports on projects
- 5 Chapters in additional site reports.
- 4 Publications, 1 in press.

APPENDIX B.

MAP LOCATION, SITE PLAN, AND
REPRESENTATIVE SOIL PROFILES OF 15Hd488